



## AN ENERGY STAR BUILDINGS<sup>SM</sup> AND GREEN LIGHTS<sup>®</sup> CASE STUDY FOR The City and County of Denver

Project Director  
Dr. Darryl Winer,  
Utilities Coordinator

Partner Since  
1994

Total Committed  
Square Footage  
14 million

Location  
Denver, Colorado

*"The reductions we've seen as a result of our [energy management] programs are good government. The people live with our results and our results are impressive. The brown cloud is a thing of the past."*

—Dr. Darryl Winer,  
Utilities Coordinator

### Partnering with EPA

The city and county of Denver joined the ENERGY STAR Buildings<sup>SM</sup> and Green Lights<sup>®</sup> Partnership to participate in a nationally recognized energy-efficiency and pollution reduction initiative. A Green Lights Partner for five years, Denver became a charter ENERGY STAR Buildings Partner to access the substantial EPA technical support from account managers and to network with other state and local governments.

Named the 1997 Green Lights Government Partner of the Year by EPA, Denver believes that upgrading buildings with energy-efficient technologies is the right thing to do. According to Utilities Director Dr. Darryl Winer, "Energy efficiency directly benefits the constituents of our city by conserving resources, improving the environment, and saving taxpayer dollars." Though Denver began implementing retrofits prior to joining the Partnership, Denver credits EPA with helping it to combine projects and complete them faster.

		Progress to Date
<b>Project Costs*</b>	Total Expenditures	\$123,993
	Dollars per Square Foot	\$0.86
	Total Square Footage Upgraded	1.4 million
	Percent Upgraded	100%
<b>Cost Savings*</b>	Annual Dollars	\$29,680
	Dollars per Square Foot	\$0.021
<b>Annual Energy Savings (kWh)</b>		2.6 million
<b>Pollution Prevention</b>	Annual Carbon Dioxide (lbs)	950,000
	Equivalent Cars off the Road	94
	Equivalent Acres of Trees Planted	181

\* Does not include costs and savings from window film installation. Denver has upgraded 89,942 square feet of glass, saving \$.33 dollars per square foot.

*To speak with an  
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*HTTP://www.epa.  
gov/buildings*

### Investing in Energy Efficiency

In addition to technical support, Denver's partnership with EPA has provided an external legitimacy that often has been critical in retaining funding for energy-efficiency upgrades. Denver funds its aggressive energy management program through two sources — the operating budget for projects with a payback that can be realized in a single budget year, and the Capital Improvements Program for extended-life technologies and permanent improvements to owned facilities.

When Denver began its energy management program in 1994, the city and county started by implementing lower cost upgrades with short-term paybacks, such as compact fluorescent lights, funded through the operating budget. The demonstrated success of these projects, as well as the ENERGY STAR Buildings and Green Lights stamp of approval, served as a springboard to convince city planners to finance higher cost, more comprehensive projects.

Savings accrued from the city and county's efficiency program are either returned to the utility budget to fund additional energy-efficiency programs or returned to the General Fund and reallocated in accordance with city-wide procedures. Denver also acquired \$1 million in rebates from the local utility company, which were funneled back into the energy management program. Denver now saves about \$1 million per year as a result of its upgrades, not including material savings, labor savings, or the rebate.

### Making an Impact

Using the ENERGY STAR Buildings and Green Lights approach, Denver has implemented multiple energy-efficiency measures in nearly 200 facilities. While the Denver has installed traditional energy reduction technologies, it also has investigated and, where appropriate, done large scale roll-outs of more innovative technologies such as LED traffic signals, air conditioning sub-coolers, and Low-E window films.

Notably, Denver has installed more than 18,000 red light emitting diode (LED) traffic signals in 1,200 intersections, saving more than \$350,000 annually in energy, materials, and

labor. This initiative won the Green Lights Outstanding Project of the Year in 1997.

Denver has also installed nearly 90,000 square feet of Low-E window film on glass in more than 1.4 million square feet of floor space. Key government buildings have been treated, including the city and county Building, Currigan Hall, Police Administration, Permit Center, Office Annex 3, two recreation centers, and five police stations. In the past seven months, since the window film project began, workers have been pleased with the increased privacy, and heat and glare reductions.

### Communicating Partnership Success

The city and county of Denver is proud to be a strong proponent of efficient buildings and is committed to advancing environmental issues. Denver's Utilities Agency routinely shares its Partnership experience by writing articles for distribution in national journals. Recently, Denver's successful window film initiative was featured in *Energy User News* and *Building Operating Management*.

Denver keeps thousands of residents apprised of its energy reduction progress through Earth Café, a weekly cable television program that features segments on various energy-efficiency upgrades and provides viewers with energy saving tips. Over the years, Denver has regularly attended and hosted local, regional, and national EPA events.

### Planning for the Future

The city and county of Denver will complete its Green Lights upgrades six months ahead of schedule. Denver expects to upgrade the lighting in 100 percent of its space and then continue with more comprehensive, building-wide upgrades. As Denver prepares for deregulation, these energy-efficient improvements will help it to quantify and reduce energy usage in order to achieve a strategic position in the new energy market.